

## IN THE CLAIMS

1-34. (Canceled)

35. (New) An apparatus, comprising:

one or more processors; and

a memory containing instructions executable by the processors, the processors when executing the instructions operable to:

receive a request for a call, the request indicating whether encrypted links, satellite links, or public infrastructure links, or any combination thereof, are to be used for the call;

generate a signaling message for establishing a virtual circuit for the call, the signaling message generating according to an asynchronous transfer mode protocol and to be transferred along a signaling path;

identify a predefined type of information element associated with the signaling message, the predefined information element type being one designated under the protocol to specify which standard and proprietary capabilities are supported by at least one node along the signaling path;

insert, into an information element of the predefined information element type, an indication of whether at least one link type selected from the group comprising encrypted links, satellite links, and public infrastructure links is preferred or non-preferred for the virtual circuit, the indication accessible by one or more intermediary nodes that are located on the signaling path and capable of selecting links for the virtual circuit; and

transmit the signaling message having the indication inserted into the identified field.

36. (New) The apparatus of claim 35 wherein capability for selecting links according to the indication is associated with an optional extension to the asynchronous transfer mode protocol, and the processors are further operable to:

insert organization identification data into the information element prior to transmitting the signaling message, the data uniquely identifying an organization providing the optional extension;

wherein the presence of the data in the identified field causes an intermediary node that is not configured with support for the organization's optional extension to flood the information element within its flooding domain regardless of whether it is capable of selecting links according to the indication.

37. (New) The apparatus of claim 36 wherein the signaling message is interoperable with both intermediary nodes that are configured for support with the organization's optional extension and intermediary nodes that support the asynchronous transfer mode protocol but are not configured with support for the organization's optional extension.

38. (New) The apparatus of claim 35 wherein the processors are further operable to:  
format a predefined application type field of the information element to indicate that the information element is associated with an optional extension to the asynchronous transfer mode protocol; and

set a pass along bit in the information element to prevent nodes that do not understand the information element from dropping or rejecting the signaling message.

39. (New) An apparatus for processing a call having associated therewith a remotely-computed virtual circuit, comprising:

one or more processors; and

a memory containing instructions executable by the processors, the processors when executing the instructions operable to:

receiving, at an intermediary node that comprises part of the remotely-computed virtual circuit, a service request for the call, the service request sent according to a protocol standard;

analyzing, at an intermediary node, the contents of the service request to identify any information elements marked as optional extensions to the protocol standard;

processing the identified information elements at the intermediary node to determine whether there is included therein an indication of whether at least one link type selected from the group comprising encrypted links, satellite links, and public infrastructure links is preferred or non-preferred for the call;

if the indication is included, comparing a table stored on the intermediary node to routing information for the remotely-computed virtual circuit to determine whether links that are within intermediary node's flooding group and utilized by the remotely-computed virtual circuit correspond to the indication; and

assigning a new virtual circuit for the call if the comparison indicates that the remotely-computed virtual circuit does not correspond to the indication, the new virtual circuit using at least one link from the intermediary node's flooding group that was not included in the remotely-computed virtual circuit.

40. (New) The apparatus of Claim 39 wherein the new virtual circuit is computed at the intermediary node using a shortest path first routing protocol or an on-demand routing protocol, or combinations thereof.

41. (New) The apparatus of claim 40 wherein the shortest path first routing protocol or the on-demand routing protocol, or combinations thereof are processed independent of information indicating whether a link type is an: encrypted link, satellite link, or public infrastructure link, or combinations thereof.

42. (New) The apparatus of claim 39 wherein the protocol is an asynchronous transfer mode protocol and wherein the information element comprises organization identification data, the identification data uniquely identifying an organization providing the optional extension wherein the presence of the identification data causes a intermediary node that is not configured with support for the organization's optional extension to flood the information element within its flooding group regardless of whether the intermediary node is capable of selecting links according to the indication.

43. (New) The apparatus of claim 39 wherein the service request is interoperable with both intermediary nodes that are configured for support with the organization's optional extension and intermediary nodes that support the asynchronous transfer mode protocol but are not configured with support for the organization's optional extension.

44. (New) The apparatus of claim 43 wherein the information element of the service request comprises:

a predefined application type field to indicate that the information element is associated with an optional extension to the asynchronous transfer mode protocol; and

a pass along bit to prevent nodes that do not understand the information element from dropping or rejecting the signaling message.

45. (New) The apparatus of claim 39 wherein the indication may be compared to a plurality of link type indicium wherein indicium used for determining corresponding links in a local intermediary node's flooding group is different than indicium used for determining corresponding links in a remote node's flooding group.

46. (New) An apparatus for processing a call having associated therewith a remotely-computed virtual circuit, comprising:

one or more processors; and

a memory containing instructions executable by the processors, the processors when executing the instructions operable to:

receiving, at a border node of a flooding domain that comprises part of the remotely-computed virtual circuit, a service request for the call, the service request sent according to a protocol standard;

analyzing, at the border node, the contents of the service request to identify any information elements marked as optional extensions to the protocol standard;

processing the identified information elements at the border node to determine whether there is included therein an indication of whether at least one link type selected from the group comprising encrypted links, satellite links, public infrastructure links, policy links, or predefined quality of service links is preferred or non-preferred for the call;

if the indication is included, comparing a topology database stored on the border node to routing information for the remotely-computed virtual circuit to determine whether links that are within the border node's flooding domain and utilized by the remotely-computed virtual circuit correspond to the indication; and

assigning a new virtual circuit for the call if the comparison indicates that the remotely-computed virtual circuit does not correspond to the indication, the new virtual circuit using at least one link from the border node's flooding domain, the assigned link being one that was not included in the remotely-computed virtual circuit.

47. (New) The apparatus of Claim 46 wherein the new virtual circuit is computed at the border node using a shortest path first routing protocol or an on-demand routing protocol, or combinations thereof.

48. (New) The apparatus of claim 47 wherein the shortest path first routing protocol or an on-demand routing protocol, or combinations thereof is processed using information independent of topology database information used to determine whether a link type is an: encrypted link, satellite link, public infrastructure link, policy link, or predefined quality of service link or combinations thereof.

49. (New) The apparatus of claim 46 wherein the protocol is an asynchronous transfer mode protocol and wherein the information element comprises organization identification data, the identification data uniquely identifying an organization providing the optional extension wherein the presence of the identification data in the identified field causes a border node that is not configured with support for the organization's optional extension to flood the information element within its flooding domain regardless of whether it is capable of selecting links according to the indication.

50. (New) The apparatus of claim 46 wherein the service request is interoperable with both border nodes that are configured for support with the organization's optional extension and border nodes that support the asynchronous transfer mode protocol but are not configured with support for the organization's optional extension.

51. (New) The apparatus of claim 50 wherein the information element of the service request comprises:

- a predefined application type field to indicate that the information element is associated with an optional extension to the asynchronous transfer mode protocol; and

- a pass along bit to prevent nodes that do not understand the information element from dropping or rejecting the signaling message.

52. (New) The apparatus of claim 46 wherein the indication may be compared to a plurality of link type indicium wherein an indicium used for determining corresponding links in a local border node's flooding domain is different than indicium used for determining corresponding links in a remote border node's flooding domain.

53. (New) A computer implemented method for routing a call in a network, comprising:  
receiving a service request at a node related to a call wherein said service request comprises a general application transport information element of a private network to network interface signaling setup message;

- accessing the information element;

- determining if the information element comprises a preferential attribute parameter of a link or node, or combinations thereof;

- extracting information from a database stored on the node related to a network link or node, or combinations thereof wherein the information comprises one or more supplemental

attributes and wherein the supplemental attributes provide link or nodal characteristic information supplemental to one or more topology state parameters used to process a routing protocol;

comparing the preferential attribute parameter with the one or more supplemental attributes;

generating a subset of preferred network links or nodes, or combinations thereof, from a set of network links or nodes, or combinations thereof, available for routing the call, wherein generating comprises excluding from the subset any network links or nodes, or combinations thereof, comprising one or more supplemental attributes that do not conform with the preferential attribute parameter;

performing the routing protocol to determine one or more routing paths comprising network links or nodes, or combinations thereof from the subset, wherein the protocol is based at least in part on at least one topology state parameter of the subset links or nodes or combinations thereof;

selecting a routing path from the one or more routing paths; and

routing the call via the selected routing path.

54. (New) The computer implemented method as recited in Claim 53 wherein the supplemental attributes relate to private network to network interface topology or policy characteristics, or combinations thereof.

55. (New) The computer implemented method as recited in Claim 53, wherein the supplemental attribute is related to: a capability of a link, a characteristic of a node comprising a link, or a peer group policy or combinations thereof.

56. (New) The computer implemented method as recited in Claim 53, wherein the preferential attribute parameter specifies that a satellite link or a terrestrial link is preferred and wherein the supplemental attribute identifies whether a link is a satellite link or a terrestrial link.

57. (New) The computer implemented method as recited in Claim 53, wherein the preferential attribute parameter specifies that a public link or a private link is preferred and wherein the supplemental attribute identifies whether a link is a public link or a private link.

58. (New) The computer implemented method as recited in Claim 53, wherein the preferential attribute parameter specifies that an encrypted link or an unencrypted link is preferred and wherein the supplemental attribute identifies whether a link is encrypted or unencrypted.

59. (New) The computer implemented method as recited in Claim 53, wherein the protocol is a shortest path first routing protocol or an on-demand routing protocol, or combinations thereof.

60. (New) The computer implemented method as recited in Claim 53, wherein the preferential attribute parameter is related to: a capability of a link, a characteristic of a node comprising a link, or a peer group policy or combinations thereof.

61. (New) The computer implemented method as recited in Claim 53, wherein the preferential attribute parameter is selected from the group consisting of:

- a characteristic relating to type;
- a characteristic relating to encryption;
- a characteristic relating to basing;
- a characteristic relating to public nature;
- a characteristic relating to quality of service capability;
- a characteristic relating to said link comprising a virtual trunk; and
- a color assigned to that route.

62. (New) The computer implemented method as recited in Claim 53, further comprising providing an application identification within the general application transport information element of the service request wherein such application identification enables flooding of the service request regardless of whether the node is configured to access or understand the information element comprising the preferential attribute parameter.

63. (New) The computer implemented method as recited in Claim 62 wherein the application identification comprises an organization unique identifier.

64. (New) The computer implemented method as recited in Claim 53 wherein the supplemental attributes are communicated to the database via a system capability information group of a private network to network interface link or nodal topology state element.

65. (New) The computer implemented method as recited in Claim 53, wherein the one or more topology state parameters provide link or nodal characteristic information that is different than the characteristic information provided by the supplemental attributes.

66. (New) The computer implemented method as recited in Claim 53, wherein the routing protocol is processed independent of the one or more supplemental attributes.